Roundtable on Digitising European Industry with Commissioner Oettinger

20 September 2016

Brussels

Objectives, Agenda, Background

Venue: Centre Albert Borschette CCAB 2D, Rue Froissart 36, Brussels

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1. OBJECTIVES AND SET-UP

This Roundtable kicks off the implementation of the Digitising European Industry[1] initiative (DEI) as adopted and announced at Hannover Fair by the European Commission in April, and further endorsed by the Competitiveness Council concluding[2] with a "*call on the Commission to establish, together with all Member States, and industry and other stakeholders, and building upon existing multi-stakeholder dialogues, a framework for facilitating coordination and cooperation of European, national and regional initiatives on digitising European industry, as well as to mobilise stakeholders across the value chains*".

The overall objective of the DEI initiative is to ensure that any industry in Europe, big or small, wherever situated and in any sector can fully benefit from digital innovations to upgrade its products, improve its processes and adapt its business models to the digital change. This requires not only a dynamic digital sector in Europe but also the full integration of digital innovations across all sectors of the economy. The DEI initiative is based on an ambitious collective effort involving public and private stakeholders across Europe at regional, national and EU level.

Success in implementation therefore will depend to a large extent on the joint capacity of all stakeholders in Europe, (industry, academia, Regions, Member States and EU institutions) to work across traditional economic and policy silos. It depends also on the capacity to act swiftly and to develop and implement simple mechanisms to combine resources and mix policy instruments from financial investments to regulation and coordination across the EU.

1.1. The concept of a European platform of national initiatives

More than 30 national and regional initiatives for digitising industry have been launched across Europe. As highlighted by the above Council Conclusions and underlined by stakeholders during the wide consultations leading to the adoption of the DEI initiative, a framework is needed to join forces across the EU and ensure efficient and smooth articulation between the various actions to be conducted at national, regional and EU level. Focus should be on delivery and achievements and ensuring complementarity and combination of effort when needed.

The goal is therefore to put in place such a coordination framework in which experiences can be shared, collaboration and joint investments can be triggered, common approaches to regulatory problems be explored and means for re-skilling of the workforce be further exchanged. We propose to label this coordination framework as the "**European Platform of National Initiatives on Digitisation**".

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[1] https://ec.europa.eu/digital-single-market/en/news/communication-digitising-european-industry-reaping-full-benefits-digital-single-market

[2] Council Conclusions 8735/16

In line with the April DEI initiative, the platform will be based on:

- High-level Roundtables of representatives of Member States' initiatives, industry leaders and social partners, to be held twice a year. Preparatory activities will be developed in specific Working Groups.
- A European Stakeholder Forum for wider consultation and outreach involving stakeholders from the full digital value chains. This will be a public event, held once per year and co-hosted by Member States. This will be, in particular, the opportunity for the Working Groups to hold public sessions to report and get input on their activities.

The Commission will also regularly report on the progress of the actions, and will develop and maintain a catalogue of national and regional initiatives and priorities.

1.2. Objectives of the September Roundtable

The Roundtable is the first one after the launch of the DEI Communication and takes place in **Brussels on 20 September 2016 from 12:30 to 16:30**; its core objective is to start the process establishing the European Platform of National Initiatives. In detail, it aims at:

- Putting in place the overall DEI Platform composed of Roundtables, Stakeholder Fora and Working Groups;
- Launching the activities of the specific Working Groups to ensure proper and swift implementation of the DEI action lines[3];
- Promoting the setup of national initiatives in Member States where there is none yet;
- Setting out detailed objectives and targets to be achieved collectively for the period until Hannover Fair in April 2017.

In order to achieve these objectives, the Roundtable will be organised in two parts. The first part will deal with the overall political objectives and strategy of the Digitising European Industry initiative and the concept of the European Platform of National Initiatives, as well as an overview of the national initiatives. It will be followed up by a political commitment to concrete DEI actions of the various stakeholders.

1.3. Participation

The Roundtable is organised by the Commission services under the lead of DG CONNECT with participation of Commissioners Oettinger, Bieńkowska, and Moedas.

The Roundtable will gather around 80 external participants as follows:

- Senior officials formally nominated by the lead Member State Ministries from all the Member States of the EU at Director-General level - for Member States, where responsibility for DEI initiatives is shared between ministries, a maximum of two ministries may be represented through their Director-Generals.

- In addition, in the Member States where a national initiative for Digitising Industry is already existing or in foundation (AT, BE, DK, FR, DE, NL, PT, SE, CZ, ES, HU,

[3] This includes also, when feasible, the linking to already existing Working Groups (e.g. on skills and standards)

IT, LUX, SK, UK): a high-level industrial representative for the strategy of the respective national initiative at CEO or CTO-level typically from industry and the secretary general or equivalent of the national initiative, also formally nominated by the lead Member State Ministries.

- Presidents of the European Public Private Partnerships under Horizon 2020: ECSEL, SPARC/robotics, Photonics21, Big Data Value, HPC, 5G, FoF, Cybersecurity, SPIRE, EGVI, EeB, BBI, IMI and CleanSky; as well as of the Alliance for Internet of Things Innovation (AIOTI).

- Director Generals of European Associations representing relevant industries and social partners.

- Up to ten observers.

1.4. Venue

The Roundtable on "Digitising European Industry" will take place at **Centre Albert Borschette CCAB 2D, Rue Froissart 36, 1049 Brussels. Given the space limitation in the Roundtable room, a listening room with videolink in CCAB 4B will welcome the accompanying staff.**

The European Commission has currently reinforced security measures, which might require being present at least 30 minutes before.

1.5. Next Roundtables

Going forward as planned in the DEI Communication (COM(2016)180), the **next Roundtable** will take place in April 2017, around Hannover Fair 2017 (24 – 28 April 2017) with the objective of taking stock of the progress made and adjusting, if necessary, the strategy, taking into account the first concrete outcomes and developments.

A **follow-up Roundtable** is foreseen by mid-September 2017.

2. ANNOTATED AGENDA OF THE SEPTEMBER ROUNDTABLE

Part I: The "European platform of national initiatives" concept

12:30 - 13:00 The EU action plan for Digitising European Industry – making it happen

Commissioner Günther H. Oettinger, Commissioner Digital Economy and Society: welcome, introduction to the European platform of national initiatives concept, main expectations (10')

Lowri Evans, Director General GROW (5')

Roberto Viola, Director General CONNECT: DEI Governance structure, role of national initiatives *(10')*

13:00 – 13:45 Interventions by selected senior high-level Member States representatives (5') for Member States with established initiatives or initiatives in foundation (ordered by country):

Mr Herbert Kasser, Secretary General (Bundesministerium für Verkehr, Innovation und Technologie, AT)

Mr Eduard Muřický, Deputy Minister (Ministry of Industry and Trade of the Czech Republic , CZ)

Herr Dr. Wolfgang Scheremet, Director General Industrial Policy (German Federal Ministry for Economic Affairs and Energy, DE)

Mr Søren Gaard, Deputy Permanent Secretary for Business Affairs (Ministry of Business and Growth, DK)

Mr Benjamin GALLEZOT, Directeur général adjoint, Direction générale des entreprises (MEIN/DGE) (Ministère de l'Economie, de l'Industrie et du Numérique, FR)

Mr Stefano Firpo, Director General for Industrial policy, competitiveness and SMEs (Ministero dello Sviluppo Economico, IT)

Mr Arturo Lami, Directeur général des Activités Economiques (Ministère de l'Economie, PT)

Ms Christina Nordin, Director-General, Department for Business, Competitive and Agriculture (Ministry of Enterprise and Innovation, SE)

Issues suggested to be addressed by participants:
- Focus and impact of your national initiative
- National working group structure and potential link to EU structure

13:45 – 14:00 Short interventions (3') by representatives of other Member States and national initiatives

14:00 – 14:05 *Commissioner Günther H. Oettinger:* Conclusions on the platforms of initiatives concept and the governance framework

14:05 – 14:45 Snack

Part II: Implementation plan and Working Groups per strategic pillar

14:45 – 15:25 **Mainstreaming digital innovation across all sectors**

Khalil Rouhana (Director, CNECT), Slawomir Tokarski (Director GROW): Objectives, roles and commitments (10')

Professor Zuehlke (DFKI): "Smart Factory KL - a successful model of a digital innovation hub" (5')

Short interventions by participants and discussion

Issues suggested to be addressed by participants: What is your approach for building up or reinforcing your infrastructure of digital competence centres and innovation hubs? Which investments do you envisage in your MS in the next 5 years on the outreach of digital innovations in any industry across all sectors of the economy, in particular through digital innovation hubs? Where do you see the greatest potential for cross-border collaboration, in particular in the context of smart specialisation and the need to build-up value chains across the EU?

15:25 – 16:05 **Strengthening leadership in digital technologies value chains and platforms**

Khalil Rouhana (Director, CNECT), Peter Droell (Director RTD): Objectives, roles and commitments (10')

Short interventions by participants and discussion

Issues suggested to be addressed by participants: Which areas do you recommend for platform-based large scale piloting actions at European scale: - vertical: e.g. connected and automated driving; connected smart factory; Robotics IoT and AI for healthy living and active ageing, 5G demonstration at large events? - horizontal: e.g. IoT platforms, industrial data platforms? Which investments do you envisage in your MS in the next 5 years on: - National research and innovation initiatives in the areas of the European PPPs and in alignment with them; - Platform-based large scale piloting and experimentation, which requires a European-scale approach?

16:05 – 16:25 **Reports from ongoing work from the other action lines**

Lucy Sioli (Head of Unit, CNECT): report from the **Jobs and Skills** Roundtable of 20 Sept. 2016 (5')

nn: report from progress on the **Data Economy** (5')

Kirsi Ekroth-Manssila (Head of Unit, GROW): report from the **Multistakeholder Platform on ICT Standardisation** (5')

Short statements by participants and discussion

Issues suggested to be addressed by participants: Which issues do you think need reinforcement in the standardization, regulatory and skills debate?

16:25 – 16:30 *Commissioners Oettinger:* Conclusions and next steps

3. BACKGROUND

3.1. The Digitising European Industry Initiative

The overall objective of the DEI action plan[4] is to ensure that *any industry in Europe, big or small, wherever situated and in any sector can fully benefit from digital innovations to upgrade its products, improve its processes and adapt its business models to the digital change*. This requires not only a dynamic digital sector in Europe but also the full integration of digital innovations across all sectors of the economy.

Since the adoption by the European Commission of the "*Digitising European Industry: Reaping the full benefits of a Digital Single Market*" Communication (COM(2016)180) and its announcement at the Hannover Fair in April 2016[5], there has been a general support to the process put in place to bring the various public and private actors together, not only in triggering actions at national or regional level, but also in helping develop a common vision across the EU for modernising our industry. This can be seen in the intensity of and similarities between the national initiatives launched in the last twelve months in this field.

The Communication proposed actions grouped under the following headings, which needs to be monitored and reviewed, at least, on a yearly basis to ensure their continued relevance:

1. A framework for co-ordination of initiatives for digitising industry

2. Co-investing in boosting Europe's digital innovation capacities

3. Partnerships for leadership in digital technologies value chains and platforms

4. Providing the appropriate regulatory framework conditions

5. A human capital ready for the digital transformation with the necessary skills

Delivery of the various actions to maintain momentum is essential now. The big challenges ahead of us are the mobilisation of the necessary financial resources and the use of EU financial support to leverage public and private investments. Equally challenging is finding the right balance for the regulatory measures in the complex fields of data ownership and liability and safety of autonomous and Artificial Intelligence-based systems. Finding the means to trigger a serious revision of our education and life-long learning schemes across Europe to cope with the digital change will also be a demanding task.

Web site: https://ec.europa.eu/digital-single-market/en/digitising-european-industry

[4] COM(2016)180, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016DC0180

[5] https://ec.europa.eu/commission/2014-2019/oettinger/announcements/hannover-messe-digitising-european-industry-delivered-zvei-event_en

3.2. Framework for coordination of initiatives for Digitising Industry

The following actions from the Communication need to be put in place:

- Twice a year, a high-level Roundtable of representatives of Member States' initiatives, industry leaders, and social partners ensuring a continuous EU-wide dialogue, with preparatory activities developed, when needed, in specific Working Groups addressing both sector-specific and cross-sector issues
- A yearly European stakeholder forum for wider consultation and outreach involving stakeholders from the full digital value chains
- The Commission will regularly report on the progress of the actions.
- It will develop by end of 2016 and update on a yearly basis a catalogue of national and regional initiatives and priorities

Roundtables

Two **Roundtables** with Commissioners Oettinger, Bieńkowska and Moedas are planned per year. The Roundtables are the mechanism for Member States and industry to steer and support the implementation of an EU-wide digitising industry initiative. They set out detailed objectives and targets for pan-European collaboration until the next Roundtable, and set up Working Groups to support this collaboration.

The Roundtables bring together all high level representatives of national initiatives on DEI (DG level in national ministries and a high-level representative for the strategy of the national initiative, together with the director of the national initiative if relevant), industry leaders (CEO and CTO level from user industry, suppliers, SMEs), trade unions, leaders of the public private partnerships and experts from the academic community.

Participants at the Roundtables will be around 80 representatives who must register as member of the Expert Group[6].

European Stakeholder Forum

The **European Stakeholder Forum** is a yearly public event, which brings together a larger community to widen the scope of the consultation and to allow further networking of European initiatives and platforms.

The Forum is co-organised by a Member State together with the Commission, with high-level policy debate on DEI initiative and public sessions of the Working Groups. Demonstrations and exhibitions of best practices in digitalisation of industry will be provided.

Policy initiatives on digitising industry, innovation hubs and competence centres across Europe will have the opportunity to exchange best practices, allowing different initiatives to learn from each other and to be aware of what other initiatives do. Social partners like trade unions and educational and training institutions will be invited to contribute.

The first edition of the European Stakeholder Forum is foreseen to take place in Germany, hosted by BMWI - Federal Ministry for Economic Affairs and Energy, and

[6] Transparency register: http://ec.europa.eu/transparencyregister/public/homePage.do. More information will be sent later to the participants with the procedures and description of the Expert Group.

will have the format of a 2-day conference. Provisional date is 31 January – 1 February 2017.

The Commission is launching a set of actions to get an insight on national initiatives regarding digital transformation of industry. This includes the work done under the Digital Entrepreneurship Monitor (DEM)[7], the building up of a catalogue on Digital Innovation Hubs as well as further measurement of the integration of digital technologies by business across the EU.

Working Groups

Set-up

The Working Group structure shall be aligned with the action lines of the Communication "Digitising European Industry - Reaping the full benefits of a Digital Single Market". Roundtable attendees are invited to reflect about the proposed first set of WG in terms of effective support to the delivery on the main DEI actions.

Two Working Groups (*more information in the detailed suggested mandate below*) are suggested to be set up, starting with this Roundtable:

1. **Mainstreaming digital innovation across all sectors**
2. **Strengthening leadership in digital technologies and in digital industrial platforms across value chains in all sectors of the economy**

A first meeting of these two Working Groups is planned to be held in **Brussels on 20-21 October 2016**.

Contributions to the other action lines shall be made through linking and reinforcing the industrial focus of existing working structures.

3. **Jobs and Skills**

   The New Skills Agenda for Europe[8] presented in June 2016 gives particular importance to the topic of digital skills and proposed a number of actions at national and European level. For instance, Member States should design national digital skills strategies and launch national partnerships for digital skills (where they do not exist) by 2017. This will connect to the Digital Skills and Jobs Coalition at European level which brings together Member States, businesses, and other stakeholders to engage in concrete joint action and best practice exchange.

   To prepare these actions, an expert group with Member State representatives has started working under the umbrella of the Digital Single Market strategy to gather input on the policies needed at European, national and regional level for digital skills development. This work will feed into the formal launch of the Digital Skills and Jobs Coalition on 1st December 2016. Social Partners from many sectors will provide their input on the occasion of a Roundtable on digital skills taking place on 20 September back-to back with this Roundtable.

[7] https://ec.europa.eu/growth/tools-databases/dem/

[8] http://europa.eu/rapid/press-release_IP-16-2039_en.htm

4. **Regulatory issues such as data economy**

Following an open consultation[9], the Commission will put forward by the end of the year an initiative on Building the EU Data Economy that will tackle, firstly, restrictions on the free flow of data, removing legal barriers to the location of data for storage and processing purposes.

Secondly, the initiative will also address legal uncertainties surrounding the emerging issues of data ownership and access, (re)usability and interoperability, as well as liability. Operators and investors in tomorrow's data value chain need predictability and legal certainty.

The main goal is to foster a trustworthy and effective single market for data services, including cloud-based services, and to make sure that data location restrictions do not act as barriers to the single market in data technologies and services or stifle innovation.

Given the ongoing work on several regulatory aspects mentioned in the DEI action plan, it is important to re-visit the state of play at the next Roundtable in 2017 in order to clarify further gaps and opportunities.

Web: https://ec.europa.eu/digital-single-market/en/news/consultation-workshop-free-flow-data and synopsis report: https://ec.europa.eu/digital-single-market/en/news/synopsis-report-contributions-public-consultation-regulatory-environment-data-and-cloud

5. **ICT Standardisation**

ICT Standardisation is the focus of the European Multi Stakeholder Platform on ICT Standardisation[10] (MSP) group. The MSP is a consultative expert group with the tasks on, among others, advise the Commission on all matters related to European ICT standardisation policy and its effective implementation, identify potential future ICT standardisation needs in support of European legislation, policies and public procurement, advise the Commission on the progress of ICT standardisation and related activities in support of legislation and policies, and advise the Commission on cooperation between standards development organisations and European standardisation bodies to improve the integration of their work in European ICT standardisation and ensure availability of ICT standards supporting interoperability. The MSP meets regularly.

Given the role of the MSP on ICT standardisation and the work to be developed in the proposed WG on "Strengthening leadership in digital technologies and in digital industrial platforms across value chains in all sectors of the economy", it is important to ensure mutual information flows between these groups.

Web: https://ec.europa.eu/digital-single-market/en/european-multi-stakeholder-platform-ict-standardisation

[9] https://ec.europa.eu/digital-single-market/en/news/synopsis-report-contributions-public-consultation-regulatory-environment-data-and-cloud

[10] https://ec.europa.eu/digital-single-market/en/european-multi-stakeholder-platform-ict-standardisation

Participants to new Working groups

Working groups consist of a selection of representatives of national Working Groups on related issues plus competent experts. Suggestions may be done by the Roundtable participants and observers. The European Commission remains responsible for ensuring a balanced and effective composition of the group.

General Mandate

Working Groups aim at making progress on aspects of the implementation of the DEI action plan.

They should have a lifetime limited to the duration between two consecutive Roundtables, and precise mandate, allowing for a reporting to the next Roundtable in which a decision to continue the Working Group should be taken.

Each Working Group is expected to produce a report supporting the implementation of the DEI actions. According to its mandate, it could perform fact findings and collecting best practices up to formulating recommendations for example on policy matters and mobilisation and leveraging of investments addressed to the high-level representatives attending the Roundtables.

3.3. Draft Mandate for WG1: Mainstreaming digital innovation across all sectors

The Communication proposes the following actions:

- The Commission encourages Member States and Regions to invest in digital innovation hubs and incentivise industry to embrace digital innovations and foster synergies with other key enabling technologies

- Focusing 500M€ investment from Horizon 2020 on digital innovation hubs to:

  - leverage an additional investment of €5 billion by Member States and regions
  - enable networking and collaboration of digital competence centres and cluster partnerships
  - support cross-border collaboration of innovative experimentation activities.
  - share best practices and develop, by the end of 2016, a catalogue of competences.
  - mobilise regions with no digital innovation hub to join and invest

- Wider use of public procurement of innovations to improve efficiency and quality of public sector

- Setting up in June 2016 a thematic smart specialisation platform for industrial modernisation

Motivation

The challenge is to draw further investments into competence centres and digital innovation hubs so that these can provide knowledge and technology facilities

and act as "connectors" for industry and notably SMEs in all regions, in synergy with other key enabling technologies.

Actions (one bullet per action)

- The WG will describe current approaches and best practices and **elaborate in more detail the digital innovation hub approach** and the plans for their further development in line with the suggestions below. The Commission will provide support with a document explaining current EU-financed initiatives on Digital Innovation Hubs and the various types of implementations.
- **Foster the further expansion of Digital Innovation Hubs, alongside significant investments into these.** The plan is to help establish over the next 5 years an additional 100 new hubs and to upgrade 200 existing hubs. This means:

    - Around 20 new hubs to be established every year with investments primarily targeting the establishment or reinforcement of digital competence centres, focusing on development and experimentation facilities and on relevant expertise (technical, business and financing) to support industry in its digital transformation.
    - A regular re-assessment of existing digital innovation hubs across regions in Europe leading to updating and upgrading the existing facilities and resources (40 hubs upgraded per year). Sustainable business models need to be established for every competence centres. Sustainability is essential and this includes resources from contract research.
    - The WG shall reflect on how Member States, regions and the private sector could fund the expansion of digital innovation hubs from sources such as ESIF[11], EFSI, or other national and regional funds, mobilising at least **5B€ from different financial sources.**

- **Mobilise all levels of policy and decision makers**: Investment decisions are essential to modernise our industrial fabric and trigger a bottom wave of innovation across Europe requires a clear vision at regional and national level. In order to promote investment in innovation (in particular ESIF), specific actions need to be proposed to bring this vision to high level attention.
- **Engage with the private sector:** This includes investment directly by private companies to build their own digital innovation hubs open to external partners. Successful examples of this are already found in Europe such as Philips' high-tech campus in Eindhoven or IBM's European Watson innovation centre in Munich. This includes as well co-investment in pilot lines for production in ECSEL and the Photonics PPP.
- **Connect to the investment community (VC, BAs, etc):** The link to private investment includes also the connection to venture capital firms, business angels and other financial investors. Bringing these communities including EIB and EIF (under the EFSI umbrella) into the innovation hub framework of Digitising European Industry is crucial.
- **Supporting industry and Digital Innovation Hubs to find the right competences** is a necessary mechanism to foster the integration of digital innovations into products and processes. The European Commission plans to launch a study to **map dynamically digital innovation hubs** encompassing the actual data and a tool/portal

[11] This includes for example the development of the required high-level master plan for digital innovation hubs supported bottom up through the ESIF programme (structural funds).

to make this data accessible. The WG is invited to reflect on how to best support this key instrument.

- **Set up a thematic smart specialisation platform:** A thematic Smart Specialisation Platform for Industrial Modernisation has been set-up in June 2016 by GROW and REGIO. This initiative offers support to interregional cooperation based on matching regions with similar smart specialisation priorities related to industrial modernisation. It is hosted by the European Commission's Smart Specialisation Platform located in Seville. The aim of this initiative is to create an investment pipeline across the EU, by mapping regional strengths and needs, matching them within a value chain, and providing tailored advice and support services. The platform could help regions develop or share infrastructure such as testing facilities, pilot plants, data centres, and Fab-Labs and develop joint investment projects. First thematic networks will be launched in October 2016. This effort will be supported through several activities financed under the COSME 2017 programme. For example, the action to help transforming cities and regions into launch-pads of digital transformation and industrial modernisation will provide hands-on policy advisory services and facilitation and showcasing services.

- The WG should reflect on how they could mutually reinforce both objectives of the smart specialisation and of the digital innovation hub schemes put forward in H2020 such as I4MS, and in particular to reach out to less developed regions.

- **Wider use of public procurement of innovations**: the WG should identify areas where public procurement of innovations would support the further development and scaling up of digital technologies.

Participants

In addition to the experts nominated by the Roundtable participants, the WG could encompass persons with specific experience in setting up DIH, in financing innovations and mobilising regional investments.

Expected outcome

The WG should develop a **Report on approaches, best practices and plans for the roll-out of Digital Innovation Hubs**.

Expected timing:

- A first draft of this report should be ready before the end of December 2016.
- Revised draft for stakeholder forum (end of January 2017)
- Final version for Hannover Fair 2017.

In particular, the WG is invited to reflect on the following questions:

- what do competence centres and DIH need to offer to support more effectively industry?
- how to ensure that the knowledge of the network, in particular missing competences, reaches out to the DIH where it is needed?
- what is the volume of investments necessary to ensure the creation and expansion of the DIH across Europe? How to leverage European, national and regional public investments? Which investments are already foreseen by MS and regions?

- how to reach out to regions without DIH?
- how to foster synergies and collaboration between DIH and relevant competence centres, such as KETs Technology Centres/ Pilot Lines?
- which targets and indicators should be retained to monitor progress?

3.4. **Draft Mandate for WG2:** Strengthening leadership in digital technologies and in digital industrial platforms across value chains in all sectors of the economy

The Communication proposes the following actions:

- Reinforce the role of PPPs as coordinators of EU-wide R&I effort, national initiatives and industrial strategies by focusing on key technologies and their integration including through large scale federating projects

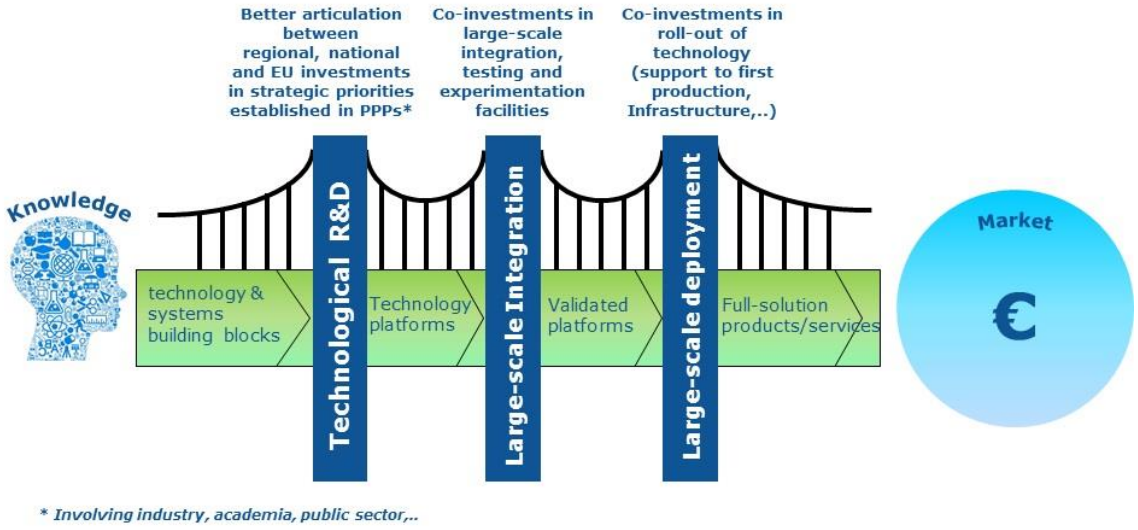
- Focus a significant part of the PPPs and national investments on cross-sectorial and integrated digital platforms and ecosystems including reference implementation and experimentation environments in real setting. The Commission will monitor the commitment by the private sector to invest, on average, at least four times as much as the EU

Motivation

The challenge is to seize the opportunities arising from digitisation to establish European leadership in the next generation digital platforms and re-build the necessary, underlying digital supply chain on which all economic sectors are increasingly dependent. It also aims at removing obstacles, including cross-border obstacles, which currently prevent large-scale testing and experimentation and block the full deployment of these technologies into the market. This is particularly relevant for the autonomous connected vehicles and the connected smart factory.

The challenge also includes better alignment of national R&D&I programmes, both with each other and with EU programmes and delivery of co-investment by industry along the continued support to digital innovations from development of technology and building blocks to roll-out of digital integration platforms, in primarily three stages with different requirements of means and intensity of public intervention:

1. Research and development of technology and systems building blocks.
2. Platform and large scale experimentation pilots.
3. Full roll out of digital integration platforms.



Public Private Partnerships (PPPs[12]) are an important means to develop the technology building blocks which underpin the digital revolution. The plan is to continue this development and focus them even more on the goals outlined in the DEI action plan. This means that more coordination is required between the different PPPs and that their Strategic Research Agenda's should be better aligned to reach critical mass. SRA's should also contain plans for development of standards through large scale testing, and should be shared with the Multi-Stakeholder Platform for standardisation.

This Working Group should develop advice at a strategic level. The recommendations will be fed into the existing process for the development of the Work Programmes of Horizon 2020, where the European Commission works together with Member States and advisory groups.

Actions (one bullet per action)

The proposed approach is to maintain and reinforce the European support in Horizon 2020 to the PPPs in core technologies and for national programmes to align with the priorities defined within these PPPs.

1. Priority development of technology and systems building blocks by aligning strategic research agendas of PPPs and MSs programmes

The European Union is supporting through H2020 several PPPs for R&D of technology and systems building blocks. To ensure delivery of the PPPs and co-investment by industry, investments by the private sector in the PPP including the targeted leverage are regularly monitored by the Commission and corrective measures are taken as needed. The WG should reflect on the building block priority developments as well as how Member States could **commit to align and co-invest** on the same industrial priorities in order to reach critical mass. The reflection shall include consideration for the role of MS in the PPPs.

2. Platforms and large scale pilots

- For actions where the technology demonstrated in the labs is about to be brought to market, the challenge is on co-investments in large-scale integration, testing and experimentation facilities bringing the various technologies together. As demonstrated in actions like pilot lines for production and large scale demonstrations in ECSEL or in platform building around FIWARE in the Future Internet PPP, this will help bring the next generation platforms made in Europe quicker to the market. It will also create full ecosystems of innovation around the platforms and support standardisation of EU-based technologies.

- The European Union has selected **a first batch of platform-related projects and large scale integration, testing and experimentation pilots** under H2020 Work Programme 2016/17 in the Factories of the Future PPP ("operating system" of the connected factory of the future), the Big Data PPP (data platforms), the IoT Focus Area (large scale pilots on autonomous vehicles in a connected environment, smart farming and food security, wearables for a smart ecosystem, smart living

[12] DG CONNECT PPPs: 5G, Photonics, Robotics, Factories of the Future (digital), High Performance Computing, Big Data, Cybersecurity and ECSEL JU. PPPs managed by other services such as Factories of the Future, SPIRE, EGVI, Energy Efficient Buildings, BBI , IMI and CleanSky also play an important role in this process.

environments for ageing well, reference zones in EU cities), and the Joint Undertaking ECSEL (lighthouse projects cutting across the value chain from components to systems). **The WG should reflect on how building platforms is going to be approached on a European and national level and how ICT could be mainstreamed in the national R&I programmes.**

- The WG should reflect on the form and objectives for **further EU and national platform-related projects and/or large scale testing and experimentation pilots, how PPPs can align their strategic research agendas to develop the necessary platforms, large scale pilots and standards, and how national efforts could be combined in an overall support**, in particular, with a view to:

    - Enable the **integration of relevant digital technologies** such as IoT; big data, cloud, and HPC; autonomous systems and artificial intelligence into integration platforms addressing **cross-sector challenges**.

    - **Integrate** converging digital innovations also **into sectorial platforms and full solutions** and testing them across national borders.

    - Develop across Europe facilities for experimentation which could foster a rapid development of ICT standardisation leading to new or better standards as outlined in the Communication on Priorities of ICT Standardisation for the Digital Single Market.

- The WG should reflect on the prioritisation of several initiatives under preparation:

    - **Integration platforms addressing cross-sector challenges:**

        1. **Leadership in IoT*:*** The investment will address notably open platforms cutting across sectors and accelerate innovation by companies and communities of developers, building on existing open service platforms, such as FIWARE.

        2. **Industrial Data Platforms:** The aim is to support the development of competitive open data platforms and the availability of world class data infrastructure in Europe. Key aspects include cyber-security solutions for restoring trust in the data-driven economy and for helping businesses to make safe and secure use of data.

        3. **5G demonstration**, e.g. at a big event. This should be considered as a result of the 5G action plan in which several options are being considered.

    - **Sectorial platforms and full solutions**:

        4. **Connected smart factory**: Prepare Europe for the next generation of production systems including digital innovation based on HPC and data analytics, collaborative robotics, integrated logistics solutions, 3D printing, etc.

        5. **Connected and automated driving**: The ambition is to set-up a cross-border testing facility pooling investments across Europe and connecting various stakeholders from AI-experts to automotive OEMs and communication service providers.

6. **Robotics, IoT and AI for healthy living and active ageing** covering areas such as smart hospitals and healthy living. This would bring together activities and stakeholders from the PPP in Robotics, the EIP on Active and Healthy Ageing, big data and IoT.

3. Full roll out of digital integration platforms

The WG would also reflect on further support to **the full roll-out of digital integration platforms.**

- Beyond testing and experimentation and in specific areas of market failure, public intervention for first production and deployment of technology can be essential. This is the case for both areas (micro-electronics, HPC) where **Important Projects of Common European Interest (IPCEI)** are currently proposed.

- The spill-over effect of investments in both areas is wide and intense and reaches a large part of the economy well beyond the sphere of the private partners involved. Achieving these IPCEIs as real EU–wide industrial projects is essential to show how cooperation between stakeholders across Europe can strengthen our competitiveness and innovation capacity and draw private investments into the modernisation of our industry and building technological and industrial leadership.

- Taking these as examples, the WG is invited to develop **more integrated funding schemes** (covering European, national and regional as well as private investments, including the use of financial instruments like EFSI) for **other technology roll-out initiatives in areas such as 5G or Connected Automated Driving**. It shall also encompass considerations for public procurement of innovations and framework conditions.

4. Subgroups on specific platform initiatives

The WG should propose whether platform initiatives would deserve specific attention of a subgroup, such as Industrial data platforms, Internet of Things and Connected smart factories. Such subgroups would work out the implementation details across all Technology Readiness Levels for a specific platform initiative. The subgroups could draw on the experience and knowledge of representative organisations and structures. Examples of such Working Subgroups are:

- an **IoT Subgroup** could reflect on how the large-scale pilots launched by the EU under the IoT Focus Area of the H2020 R&I Programme can be used to scale up IoT deployment in different sectors that includes integration of advanced IoT technology, contribution and validation of emerging standards and new business models at European and national level. The IoT subgroup could be linked to the Alliance for IoT Innovations (AIOTI).
- A **data platforms Subgroup** could reflect on how to best support the growth of innovative data-driven businesses in Europe and the exploitation of the potential of the value of data across sectors, in particular in an industrial context. It could build on the preliminary discussions launched at the Industrial Data Roundtable[13].

[13] http://ec.europa.eu/information_society/newsroom/image/document/2016-34/report_rt_idp_17_8_2016_final_16821.pdf

- **A Connected Smart Factory Subgroup** should reflect on how industry (in particular SME) can undergo a digital transformation and be fully connected with its upstream and downstream value chains, building on approaches like RAMI[14], S3P[15], FITMAN[16] and the platforms initiatives launched uner the Factories of the Future[17] EU Programme

Expected outcome

The WG should develop a Report on the alignment of priorities and programmes and mobilisation of investments towards platform/standardisation initiatives. Expected timing:

- A first draft of this report should be ready before the end of December 2016.
- Revised draft for stakeholder forum (end of January 2017)
- Final version for Hannover Fair 2017.

In particular, the WG is invited to reflect on the following questions:

- Which strategic priorities and digital platforms should be prioritised? How do Member States see the role of the PPPs in supporting the alignment of R&I programmes?
- How do Member States see the PPPs evolving and their involvement in their activities?
- How do the PPPs see their role in the development of platforms, large scale pilots and standardisation activities? How to avoid overlaps and strengthen synergies? How can these activities strengthen the dialogue in the Multistakeholder platform for standardisation?
- How to ensure the necessary mobilisation of resources at all levels?
- what are the views on the proposed large-scale integration, testing and experimentation facilities and integration platforms, which priorities should be selected and which EU, national and regional investments to support and commit to these?
- how to combine large-scale demonstrators across the EU and across Member States, taking into account already ongoing national developments?
- Which targets and indicators should be used to provide evidence and monitor progress?

Annex: Current list of national policy and research initiatives on Digitising European Industry

[14] http://www.plattform-i40.de/I40/Navigation/EN/Industrie40/AreasOfAction/NormsAndStandards/norms-and-standards.html

[15] http://www.esterel-technologies.com/news-events/press-releases/consortium-de-leaders-de-lindustrie-lance-le-projet-collaboratif-majeur-lalliance-s3p/

[16] http://www.fitman-fi.eu/

[17] https://ec.europa.eu/digital-single-market/en/factories-future

ANNEX - LIST OF NATIONAL POLICY INITIATIVES FOR DIGITISATION OF INDUSTRY (CREATED)

#	Member State	Programme	Objective	Focus	Priorities	Method	Source
1.	Austria **(PLATFORM)**	Industrie 4.0 Oesterreich	Agenda setting for Austria with industry associations, union labours, 20 leading industry, academia, …	Technological and process innovation			http://plattformindustrie40.at/
2.	Belgium	MADE DIFFERENT – Factories of the future	Increasing overall competitiveness of the manufacturing industry	Process innovation	World-class production technologies; End-to-End Engineering; Simultaneous product and production development; Human-centred production; Networked factory; Eco-production; Smart production	Research programmes in public-private partnerships	http://www.madedifferent.be/
3.	Denmark	Manufacturing Academy of Denmark (MADE)	Support the manufacturing industry in Denmark and maintain its position as a leader of innovation				http://made.dk/
4.	France **(PLATFORM)**	Alliance pour l'Industrie du Futur	Competitiveness Employment SME's development	SME's diagnostics and modernization incentives Development of the national offering Showcase pilot projects Eco projects Development of the advanced manufacturing techniques			http://allianceindustrie.wix.com/industrie-dufutur
5.	Germany **(PLATFORM)**	Plattform Industrie 4.0	Prepare German industry incl. SME`s for the future of production aligning requirements of being leading in the market and capabilities of being leading suppliers.	Technological innovation based on the main pillars such as horizontal integration along value networks, end-to-end engineering, vertical integration including security	Based on the needs of future production such as efficiency, time to market and flexibility following use-case based approach with scenarios describing the future, implementation examples from SME`s/large industry	High-level Industrie 4.0 advisory boards with all relevant stakeholders: government, trade union, industry, associations and scientific community. Strong working groups: "Reference Architectures, Norms and	http://www.plattform-i40.de

				aspects and considering new ways of working, education and legal aspects.	describing the actual status and test-infrastructure to support esp. SME`s on way towards the future	Standardisation", "Research and Innovation", "Security of Interconnected Systems", "Legal Framework" and "Employment, Apprenticeships and Learning"	
6.	Netherlands **(PLATFORM)**	Smart Industry	Dutch Industry fit for the Future	Acceleration of introduction of ICT in manufacturing and adaption of business value chains Capitalising on existing knowledge	Accelerating use of ICT at SME Leading fieldlabs in 2015, more to follow in 2016 Manufacturing Knowledge Skills ICT (security, big data, software)	Jointed program office (with Ministry Economic Affairs, FME (industrial association), TNO, Chamber of Commerce and ICT-Nederland) and per action line own teams and for fieldlab teams each running their own (regional) fieldlab program	http://www.smartindustry.nl
7.	Portugal	PRODUTECH – Production Technologies Cluster	Increase the Competitiveness of Manufacturing Industry by developing, demonstrating and promoting Advanced Manufacturing Technologies and Systems	Advanced Manufacturing Systems	New business models; Intelligent Production systems; Performance, Flexibility and Efficiency Modelling and simulation; Operations Management and Logistics; Networked production systems; Advanced Technologies Energy and environmental efficiency Advanced tools for new products and systems development; Active and passive safety in production systems	R&D and Innovation Projects (individual and cooperative) Dissemination and Demonstration Projects and Activities Cooperation Actions Internationalization Projects and Activities	www.produtech.org
8.	Sweden **(PLATFORM)**	Produktion 2030	In 2030 Sweden is the primary choice for sustainable production	Develop Leadership and Skills in sustainable production	Environmentally sustainable production; Flexible manufacturing processes; Virtual production development and simulation; Human-centred production systems; Product and production based services; Integrated product and production development	Research and innovation projects; Knowledge and technology transfer to SMEs	http://www.produktion2030.se/

LIST OF NATIONAL POLICY INITIATIVES FOR DIGITISATION OF INDUSTRY (IN THE PROCESS OF CREATION)

Member State	Programme	Objective	Focus	Priorities	Method	Source
Czech Republic	Průmysl 4.0/ Industry 4.0	Technological prerequisites and vision, requirements concerning applied research, standardization, safety/security/reliability; Impacts on labour market, skills and social impacts, impacts on education system; regulatory framework	Smart devices & technology innovation	The "Action Plan for the implementation of Industry 4.0" will include measures to support investment and standardization, applied research, human resources development and continuing education, cyber security and relevant legislation, application of innovative technologies in energy, transport and Smart Cities. To be submitted to the government in Spring 2016	The initiative is operated by Arburg	http://www.mpo.cz/dokument162351.html
Hungary	National initiative	Prime Minister willingness to make Hungary a winner with digitalisation, primarily starting with the automotive sector.				
Italy	Italia 4.0	National strategy to foster digital transformation of Industry, creating new jobs, increasing productivity	New manufacturing technologies applications (CPS), integration of value chains, enablement of new business models	Accelerating investments in digital technologies applied in manufacturing (smart manufacturing), strenghening digital infrastructures and connectivity, addressing skills mismatch	Research programmes in public-private partnerships, ultrabroadband coverage in PPP, Public investment in digital schools (Plan for digital school)	http://www.sviluppoeconomico.gov.it/index.php/it/
Luxembourg	reflection group on "Industry 4.0", led by the national employers association FEDIL in the broader context of Digital Lëtzebuerg					http://www.digital-luxembourg.public.lu/en/index.html
Portugal (PLATFORM)	Industria 4.0 (national strategy	4-year plan for Industry 4.0 in Portugal, to cover		Identify the major constrains and top priorities to bring the 4th		

	to be announced in September 2016)	funding policy for digitalization of traditional industries, recommendations for standardization and technology adoption, training and development and labour issues.		Industrial Revolution to Portuguese Agro-industries, Automotive and Moulds sectors, Fashion (textiles, Shoes), Retail and Tourism. These have been considered industries where digitalization will impact the most and add the highest value to the economy and also where both leadership and talent are more ready to embrace massive change in processes, products, services and business models.		
Slovakia (action plans to be delivered by sectors. Smart energy action plan due December 2016. Robots/automation and car manufacturing due in 2017).	Smart Industry	To streamline existing industry initiatives by capitalising on existing knowledge and strengths, taking into account technological trends, globalisation, changes in the industrial fabric and emerging demands on the customer and consumer side. It aims to better adapt human resources to new business models, new technologies, and new ways of industrial production.		Awareness Raising Adoption of Smart Industry Principles and On-boarding Innovation Hubs Basic Necessary Standardisation Fit-for-Purpose Research and Development Future of Manufacturing Funding Smart Industry Education, Skill and Labour Government Future-Proof Regulation	By forming Slovakia's "Smart Core," an interdisciplinary expert steering committee consisting of relevant experts, key stakeholders and government authorities. The Smart Core will also come up with guidelines and practical aids for developing and implementing a socio-technical approach, innovative approaches to participative work organisation and lifelong learning, and outline employee-oriented labour and training policies. It will be finalised and presented by end of July, 2016.	(no site)
Spain (PLATFORM)	Industria Conectada 4.0	Increase industrial added value and skilled employment in the sector; promote the Spanish model for the industry of the future and develop the local supply of digital solutions; develop	Industry upgrading for economic sustainability; Manufacturing efficiency for environmental sustainability; Quality employment	Ensure knowledge of Industry 4.0 technologies and skills development of Industry 4.0 in Spain. Encourage collaboration between companies from various industrial sectors, technology	High-level board Connected Industriy 4.0 with industry leaders and hight ministerial deparments representatives. Advisory board and thematic public-private partnerships working-groups	http://www.industriaconectada40.gob.es

		differential competitive levers to favor the Spanish industry and boost exports.	for social sustainability	companies, research centers and other entities in order to promote developing of 4.0 solutions adapted to the industrial needs. Promote the development of a Spanish digital enabler offer. Promote appropriate actions for the implementation of the Industry 4.0 in the Spanish industry.		
UK (PLATFORM)	UK digital strategy, Digital Transformation Plan	Exploit digital technology to increase productivity, address new markets and accelerate growth		Encourage to identify existing clusters with strengths in both digital and high-value manufacturing, and encourage these to work more closely to serve the needs of local businesses, and support the transfer of skills between the disciplines. Through Life Engineering strategy and The Digital Transformation Plan: Positioning the UK at the forefront of the Digital Transformation. The Digital transformation Plan will set out the Cross Government response to the opportunities presented by digitisation and the impact this can have on productivity. Provide a focus on digitising industry within the broader context and will set out the UK Government's ambition and policy direction in this area.		https://www.gov.uk/government/news/uk-digital-strategy-the-next-frontier-in-our-digital-revolution

LIST OF NATIONAL RESEARCH INITIATIVES FOR DIGITISATION OF INDUSTRY (CREATED)

Member State	Programme	Objective	Focus	Priorities	Method	Funding	Source
Austria	Produktion der Zukunft (Production of the Future)	Increase innovation in Austrian production sector Increase the efficiency of the current R&D expenditure Improve cooperation and networks at European and international level Improve competitiveness of Austrian industry	Technological and process innovation	Efficient production processes and systems; flexible manufacturing processes; value networks; methods and tools for planning, simulation and data-management; additive manufacturing; material science; bio-based industries; Nano-technologies	RTD projects for cooperative applied research and development; Endowed professorships; Pilot factories; Open stakeholder platform; Competence centres; Basic programme – bottom-up; Bridge (Transfer programme)	Up to 125 Mn€ per year Up to 280 Mn€ by the end of 2015 (unclear proportion for digitasing industry)	http://www.ffg.at/produktion
Belgium	MADE DIFFERENT – Factories of the future	Increasing overall competitiveness of the manufacturing industry	Process innovation	World-class production technologies; End-to-End Engineering; Simultaneous product and production development; Human-centred production; Networked factory; Eco-production; Smart production	Research programmes in public-private partnerships	8.4 Mn€ per year	http://www.madedifferent.be/
Denmark	Manufacturing Academy of Denmark (MADE)	Support the manufacturing industry in Denmark and maintain its position as a leader of innovation				183.5 Mn DKK 2014-2017	http://made.dk/
France	Programme des Investissements d'Avenir - Investments for the Future Programme	Competitiveness Growth Employment SME's development Innovation	Strategic initiatives which aim to boost French competitiveness by massively investing over the long-term in innovative projects which will eventually be a source of growth	Research Higher education and vocational training Industry and SMEs Sustainable development Digital technology Biotechnology Nuclear energy	The programmes takes the form of a series of calls for proposals designed to promote French excellence in fundamental research and industrial innovation, technology transfer, maturation, etc.	57 Md€	http://www.gouvernement.fr/investissements-d-avenir-cgi http://www.entreprises.gouv.fr/secteurs-professionnels/economie-numerique
France	Transition Numérique	The program "Transition Numérique" aims at making sensitive and at accompanying the very small businesses and SME in their appropriation of	Use of the digital technology for SME (down to 50 employees)	Three objectives: - structuring and developement of skills of the network of " advisers in the digital technology " who are the direct contact of the business	The program builds on the networks of public and semi-public counsellors which work daily with the SME: chambers of commerce and industry, tourist offices,	0,2 Mn€ per year	www.transition-numerique.fr

		the new digital tools.		managers; - the constitution of a knowledge base for these advisers, to help them in their actions with the business managers, in particular with SME : discovery and put work of the digital technology, on the tools which correspond to needs of SME (e-commerce, billing, marketing, ….); - a better visibility on the digital practices in small companies, in particular on the brakes in the adoption of the digital tools and on their new needs.	approved centers of management.		
Germany	Mittelstand 4.0	Support to small and medium-sized enterprises (SMEs) in improving their capacity for innovation, both in relation to new goods and services and the optimisation of business processes, by implementing and developing new digital technologies.	Digitization, networking and introduction of industry 4.0 applications	Establish the term "German Mittelstand" even more firmly around the globe as a concept and quality mark for small and medium-sized enterprises from Germany Present the "German Mittelstand" as a driving force for innovation and to spotlight the high number of 115,000 innovative firms and 34,000 companies engaged in research Help small and mid-sized firms to recruit the skilled labour they need	Agency Cloud Agency Trade Agency Process (i.e. Cyber Physical Systems) Competence Centres and Competence Centre Hannover	The "German Mittelstand" finances most of its investment from its own equity (54%) and bank loans (29%).	http://www.mittelstand-digital.de/DE/Foerderinitiativen/mittelstand-4-0.html
Germany	Smart Service World	Innovative services for the digital economy	Integration of cross sectoral value networks Cross usage of data between different areas of daily life	Combination of CPS; data and services; Platform development	Innovation projects	Up to 50 Mn€.	http://industrie4.0.gtai.de/INDUSTRIE40/Navigation/EN/Topics/smart-service-world.html
Germany	Autonomik for Industrie 4.0 - Production, Products, Services in the Internet of the Future	Foster autonomous systems and highly flexible production infrastructures that enable disruptive products	Logistics, engineering models (i.e. decision making support schemes), working conditions (human-machine interaction, safety & security), service robotics	Skills, migration, standards, security	19 R&I-projects, which aim to accelerate the process of transfering R&D findings into development of marketable technologies esp. in Industry and Smart Home / Building, supported by accompanying research on cross-cutting issues,	55 Mn€ 2014-2017	http://autonomik40.de

					conferences, workshops and trade fair appearances.		
Italy	Cluster Fabbrica Intelligente CFI (Intelligent Factories Cluster)	To create and organize a long lasting Italian Manufacturing community able to propose research agendas generate research results and valorize research outcomes	Products, Processes, Manufacturing System, Manufacturing networks	Technologies and systems for personalized production; Strategies, methodologies and tools for sustainable production; Valorization of humans in Factories; High efficiency in production; Innovative manufacturing processes; Evolutive and adaptable manufacturing systems; Strategy and management for next generation manufacturing systems	Roadmapping, strategic research agendas RTD projects for cooperative applied research and development Innovation projects Education projects	45 Mn€ (34 Mn€ public funding + 11 Mn€ private funding)	http://www.fabbricaintelligente.it/
Netherlands	Smart Industry	Dutch Industry fit for the Future	Acceleration of introduction of ICT in manufacturing and adaption of business value chains Capitalising on existing knowledge	Accelerating use of ICT at SME Leading fieldlabs in 2015, more to follow in 2016 Manufacturing Knowledge Skills ICT (security, big data, software)	Jointed program office (with Ministry Economic Affairs, FME (industrial association), TNO, Chamber of Commerce and ICT-Nederland) and per action line own teams and for fieldlab teams each running their own (regional) fieldlab program	Complex multi-project funding, mix of H2020 and regional EFRO (50-100 Mn€)	http://www.smartindustry.nl
Portugal	PRODUTECH – Production Technologies Cluster	Increase the Competitiveness of Manufacturing Industry by developing, demonstrating and promoting Advanced Manufacturing Technologies and Systems	Advanced Manufacturing Systems	New business models; Intelligent Production systems; Performance, Flexibility and Efficiency Modelling and simulation; Operations Management and Logistics; Networked production systems; Advanced Technologies Energy and environmental efficiency Advanced tools for new products and systems development; Active and passive safety in production systems	R&D and Innovation Projects (individual and cooperative) Dissemination and Demonstration Projects and Activities Cooperation Actions Internationalization Projects and Activities	Period 2009-2014: > Core Activities and Projects [Up to 20 Mn€] + > Complementary Projects [around 45 Mn€] Period 2016-2020: > Core Activities and Projects [Up to 40 Mn€, to be confirmed] + > Complementary projects (tbc)	www.produtech.org
Spain	Industria Conectada 4.0	Increase industrial added value and skilled	Industry upgrading for economic	Ensure knowledge of Industry 4.0 technologies and skills	High-level board Connected Industriy 4.0 with industry	2016 budget will be 97 Mn€ from	http://www.industriaconectada40.gob.es

		employment in the sector; promote the Spanish model for the industry of the future and develop the local supply of digital solutions; develop differential competitive levers to favor the Spanish industry and boost exports.	sustainability; Manufacturing efficiency for environmental sustainability; Quality employment for social sustainability	development of Industry 4.0 in Spain. Encourage collaboration between companies from various industrial sectors, technology companies, research centers and other entities in order to promote developing of 4.0 solutions adapted to the industrial needs. Promote the development of a Spanish digital enabler offer. Promote appropriate actions for the implementation of the Industry 4.0 in the Spanish industry.	leaders and hight ministerial deparments representatives. Advisory board and thematic public-private partnerships working-groups	the General Secretariat of Industry and SMEs. Amount from other units not quantified yet	
Sweden	Produktion 2030	In 2030 Sweden is the primary choice for sustainable production	Develop Leadership and Skills in sustainable production	Environmentally sustainable production; Flexible manufacturing processes; Virtual production development and simulation; Human-centred production systems; Product and production based services; Integrated product and production development	Research and innovation projects; Knowledge and technology transfer to SMEs	50 Mn€	http://www.produktion2030.se/
United Kingdom	High value Manufacturing Catapult	Drive growth of manufacturing within UK	Businesses in the field of high value manufacturing. i.e. a high level of R&D intensity, leading to significant growth. Customers include large multinationals to small spin-out companies and anything in between.	Working with UK and international organisations looking to establish or grow UK R&D capability or UK manufacturing. Industrial scale up of new technologies and processes	Invest equipment and skilled personnel in the HVMC's 7 Technology and Innovation centres around the UK which is then available on an open access basis for CR&D and industrial projects with companies of all sizes.	Core funding from InnovateUK 30Mn £ per/annum supplemented by project funding and funds secured from other sources	https://hvm.catapult.org.uk/
United Kingdom	Innovate UK	Support and connect innovative businesses in UK to accelerate sustainable economic growth.	UK businesses	Invest in research, development and innovation to make the UK the best place in the world to run an innovative business or service.	Wide range of funding programmes both single company and collaborative R&D projects, with both open and thematic calls. Innovate UK also manages a	2013/14 budget was 440 Mn£	https://www.gov.uk/government/organisations/innovate-uk

					number of networks, including KTN (Knowledge Transfer Network) and the NCP and EEN networks within the UK. It also funds Catapults, a series of physical centres with the facilities and expertise to enable businesses and researchers to collaboratively solve key problems and develop new products and services on a commercial scale.		
United Kingdom	EPSRC Manufacturing the Future theme	Invest in cutting-edge research and highly-skilled people that support the current manufacturing base in the UK providing opportunities for future development and growth.	UK academic community in partnership with business.	Priority research areas: Manufacturing Informatics, Frontier Manufacturing, Innovative Production Processes Sustainable Industrial Systems	A range of activities including: 16 Centres for Innovative Manufacturing, Calls in priority areas, investigator-led research, joint activities with Innovate UK and the HVM catapult, manufacturing and early career fellowships, 11 Centres for Doctoral Training and 5 Engineering Doctorate Centres.	80 Mn£ per annum invested in manufacturing research since 2010. Total portfolio value 387 Mn£ + 136 Mn£ leveraged from business.	https://www.epsrc.ac.uk/research/ourportfolio/themes/manufacturingthefuture/